CASE STUDY

Chronic Otitis Media, Failed Tympanostomy Tube Surgery & Resolution Following Adjustment of Vertebral Subluxation

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Abstract

Objective: To describe the chiropractic care of a child with a history of failed tympanostomy tube surgery and recurrent ear infections.

Clinical Features: A four-year old male presented for care with a history of failed tympanostomy tube surgery. The child was scheduled for repeat tympanostomy surgery. Vertebral subluxations were found and adjusted in the cervical and thoracic spine.

Intervention and Outcome: The patient’s subluxations were adjusted using the Activator hand held adjusting instrument. On the third visit, the patient’s mother opted out of her son’s scheduled surgery. The patient attended care with the recommended frequency at 2-3 times for the first two weeks, followed by once a week for eight weeks, for a duration of 12 weeks.

Conclusion: The successful chiropractic care of an infant with chronic ear infections is described. This study provides supporting evidence that infants with similar complaints may benefit from chiropractic care.

Keywords: Chronic ear infection, otitis media, tympanostomy tubes, chiropractic, vertebral subluxation, adjustment, spinal manipulation

Introduction

It is estimated that approximately 40% of children suffer from otitis media (OM) before the age of five years, often recurrent and frequently associated with visits to the doctor and antibiotic prescriptions.¹ Acute OM is characterized by symptoms of otalgia, fever, headache, irritability and listlessness² and consequently, may lead to impairments in hearing or other complications.³ In the United States, otitis media is the most common infection for which antibiotics are prescribed for children in the United States.⁴ Direct and indirect costs associated with otitis media totaled nearly $3 billion in 1995.²⁵

Current medical guidelines of a “wait and see” approach to the disorder seems wanting by parents. Antibiotic prescription is still high in most countries⁶,⁷ and inappropriate antibiotic prescribing poses a significant challenge in primary care.⁸ This is in part motivated by parental concerns of pain, disturbed sleep and irritability their child experiences.⁹ Benefits of analgesia, improved sleep, decreased irritability or better demeanor has been reported by parents with children under chiropractic care.¹⁰ Not surprisingly, of the practitioner-base alternative therapies, chiropractic has been found to be popular and highly utilized by adults and children alike.¹¹-¹²

In our on-going efforts to inform evidence-based practice, we describe the chiropractic care of an infant with otitis media.
Case Report Narrative

A four-year old male presented for chiropractic consultation and possible care at a chiropractic clinical training center with a chief complaint of otitis media. According to the patient’s parent, the symptoms began at the age three. The patient had tympanostomy tubes inserted in his ears that fell out nine months later. With follow up consultation, the ENT specialist wanted to schedule another surgery due to fluid retention in the patient’s ears. It was then that the patient’s explored alternative care approaches. With less than a month prior to the scheduled surgery, the patient’s mother presented her child for chiropractic care.

Upon consultation, the patient denied experiencing pain but his mother stated that her child constantly pulled on his ears, periodically throughout the day.

The physical examination of the patient included a HEENT exam. At each subsequent visit an ear exam was performed to check for fluid retention, redness, or excess build up of wax. During exacerbations, the ear became red and excess wax build up were observed with reports of the patient pulling on his ears periodically throughout the day. All muscle, neurological, and sensory examinations were demonstrated within normal limits. All vital signs were within normal limits. Active and passive range of motion of the cervical and thoracic spine were performed and found to be within normal limits except on passive extension and right rotation of the cervical spine which were mildly decreased without indication of pain. On static and dynamic motion digital palpation, subluxations were noted at the C1 and C2 and T7 vertebral bodies. No special tests were performed on this patient by our clinic or an outside source. On initial visit, no outcomes assessments were performed other than that described above due to the patient’s age.

Based on the history and physical examination findings, the patient was provided with a working diagnosis of otitis media with associated vertebral subluxations at vertebral levels C1, C2, and T7. The C1 was assessed as ASRP listing, the C2 as a body left (BL), and T7 was subluxated posteriorly (P).

On the first visit, the patient received chiropractic adjustments (CMT) by the use of an Activator instrument. The subluxations at C1, C2 and T7 were adjusted with the Activator instrument on the lightest setting. For the subluxation at C1, while contacting the patient’s right transverse process, the line of drive was right to left with the patient seated. For the subluxation at C2, contacting the lamina-pedicle junction, the line of drive was from left to right. The subluxation at T7 was adjusted by contacting the transverse processes with the line of drive primarily in a posterior to anterior direction with a slight inferior to superior aspect.

The patient’s care was set at a frequency of two to three times for the first two weeks, followed by once a week for eight weeks, for a duration of 12 weeks - dependent on the patient’s overall response to care where a re-evaluation would be performed for a new duration and frequency of care. The patient was given an excellent prognosis based on history and examination finding. Initially, the patient responded well to care after the first adjustment with relief lasting for over a day. Then the patient’s mother stated that her son complained of pain and fluid coming out of his ears, but she did not observe this upon examination of his ears. She also noticed his nose was runny after the initial treatment. She said he was sleeping better and was in a better mood following his adjustments. After the first two visits, the patient’s mother stated that he was no longer tugging on his ears and his nose was no longer runny. The patient’s mother also stated that his sleeping habits had improved. On the third visit, the patient’s mother stated that she had cancelled the surgery that was scheduled. With good patient compliance, the patient improved. After the duration of his care plan was completed, a re-evaluation was performed and the patient’s parents decided for their son to attend care on an as needed basis. The patient continued care once or twice a month as needed, and following ten months, the patient’s parents requested wellness care visits for their son.

Discussion

The child in the case report described suffered from recurrent ear infections. This is consistent with the epidemiology of the disorder. By age 6 years, nearly 40% of children will have experienced ≥3 ear infections. Approximately 20% of young school-aged children will at any time suffer from middle ear effusion with nearly all having at least one episode during their childhood. Risk factors include an immature immune systems, poor functioning of the eustachian tube, poor ventilation to the middle ear and equalization of pressure to the external environment due to a slender connection between the middle ear and back of the nose.

The natural history of persistent MEE is favorable but it takes time to resolve. There is persistence of effusion in 70% of ears at 2 weeks, 40% at 1 month, 20% at 2 months, and 10% at 3 months. Medically, tympanostomy tubes are inserted with persistent middle ear fluid, frequent ear infections, or ear infections that persist despite a trial of antibiotic therapy. This is the most common ambulatory surgery performed on children in the United States. Each year, 667,000 children younger than 15 years receive tympanostomy tubes, accounting for more than 20% of all ambulatory surgery for this age group. By the age of 3 years, nearly 1 in 15 children (6.8%) will have tympanostomy tubes, increasing ≥2-fold by the time the child attends daycare.

Despite the frequency of tympanostomy tube insertion, there are currently no clinical practice guidelines in the United States that address specific indications for surgery. Medical justification of this procedure is to improve hearing, reduce effusion, reduce the incidence of recurrence and provides a mechanism for drainage and administration of topical antibiotic therapy. Overall, tympanostomy tubes are said to improve the quality of life (QOL) for children with chronic otitis media with effusion, recurrent acute otitis media or both.

Interestingly, Wallace et al. compared the effectiveness of surgical strategies currently used for managing otitis media with effusion and found that choices of each tympanostomy tubes and watchful waiting did not differ in language, cognitive, or academic outcomes. Through a systematic review of the literature, Berkman et al. compared benefits
Complementary & Alternative Care

In a cross-sectional survey conducted by administering an anonymous questionnaire to parents accompanying their children attending a pediatric otolaryngology department; based on 327 responses, Shakeel et al.\textsuperscript{33} found that of 93 patients (29%), 20% had used CAM within the last year. Commonly used CAM preparations were cod-liver oil, echinacea, aloe vera, cranberry, primrose oil and herbal vitamin supplements. The popular non-herbal CAM included homeopathy, massage, aromatherapy, chiropractic, yoga and reiki. Nineteen percent used CAM for their admission illness. Sixty-one percent of parents thought that CAM was effective and 65% would recommend it to others. Fifty-one percent of parents stated that the family physician was unaware of CAM use by the child. In a review of the literature on alternative therapies in the care of children with otitis media, Levi et al.\textsuperscript{34} found the use of herbal ear drops may help relieve symptoms. Homeopathic treatments may help decrease pain and lead to faster resolution while vitamin supplements, probiotics and xylitol were thought to be helpful. Traditional Chinese and Japanese therapies show promising results but remain speculative until further research is conducted. Levi and O'Reilly\textsuperscript{25} found that few alternative therapies have been assessed with randomized controlled trials. The popularity of CAM use among patients seeking care of an ENT clinic have been confirmed by others.\textsuperscript{26-28}

Chiropractic care

Pohlman and Holton-Brown\textsuperscript{39} reviewed the literature on SMT for OM in children, outlining the diagnosis of OM, SMT description, and adverse event notation. The authors found 17 commentaries, 15 case reports, 5 case series, 8 reviews, and 4 clinical trials. Magnitude of effect was lower in higher-quality articles. No serious adverse events were found with minor transient adverse effects noted in one case series article and two of the clinical trials. The authors concluded that there was limited quality evidence for the use of SMT for children with OM but no evidence to support or refute using SMT for OM and no evidence to suggest that SMT produces serious adverse effects for children with OM. It is possible that some children with OM may benefit from SMT or SMT combined with other therapies. We performed a similar review of the literature using MANTIS (2012-2015), Index to Chiropractic Literature (2012-2015) and Pubmed (2012-2015) and found four more case reports.\textsuperscript{30,32} Despite the limited quality evidence for the use of SMT for children with OM; given the wait and see approach of medical care, chiropractic provides a viable care option to augment medical care.

This case report highlights the care of an infant with otitis media and failed tympanostomy insertion within a chiropractic teaching clinic setting. Despite observations in clinical practice by chiropractors that infants suffering from ear infections may benefit from spinal and extraspinal adjustments, we are at a loss that 20 of 24 clinicians at Canadian Memorial College of Chiropractic (CMCC) are moderately open towards the chiropractic treatment of some non-musculoskeletal disorders such as asthma, constipation, chronic pelvic pain, dysmenorrhea, infantile colic, and vertigo.\textsuperscript{33} This may reflect a lack of experience in the care of children and/or the focus of clinical training by CMCC is in the care of musculoskeletal conditions.

From a post-positivist perspective, we caution the reader on the generalizing from the report described due to the presence of bias. These include the lack of a control group, spontaneous remission, self-limiting course and natural history of the disorder, subjective validation, and expectations for clinical resolution on the part of the patient. However, from a constructivist point of view, we generate knowledge and meaning from our clinical experiences as chiropractors. It is from these that forms the basis for our generalization in caring for patients.

Conclusion

This case report opens for the possibility that children with otitis media and failed medical care in the way of tympanostomy tubes may benefit from chiropractic care vis a vis chiropractic adjustment.

References


